

**REMARKS**

Claims 1-16 remain in the application. Claims 1 and 8 have been amended. As described below, no new matter has been introduced via these amendments.

**35 U.S.C. § 112 Rejections:**

Claims 1-7 and 16 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. More specifically, the Examiner holds that the Applicants have failed to provide an adequate written description of DIN 51004 in English.

In accordance with that which was discussed and agreed upon in the informal telephonic interview with Examiner Sergent on February 13, 2006, the Applicants herein submit a copy of DIN 51004 in the English language. A copy of this Deutsche Norm accompanies the subject Amendment at Exhibit A. Thus, the Applicants respectfully submit that this § 112 rejection should be withdrawn.

Claims 2, 4-7, and 16 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. More specifically, the Examiner holds that it is unclear if the reference in the claims to “a hot wire method” corresponds only to the hot wire method disclosed within page 7, lines 38+ of the specification.

In accordance with that which was discussed and agreed upon in the informal telephonic interview with Examiner Sergent on February 13, 2006, the Applicants herein confirm that the hot wire method referred to in the claims corresponds only to the hot wire method disclosed within pages 7, lines 38+ of the specification. Thus, the Applicants respectfully submit that this § 112 rejection should be withdrawn.

Claims 8-15 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. More specifically, the Examiner holds that the “Applicants have failed to specify the type of molecular weight (i.e., number average or weight average) for the active hydrogen compounds so limited.”

The Applicants herein confirm that the particular claim language referring to the at least one active hydrogen compound is limited to number average molecular weight,  $M_n$ . Importantly, limitation to number average molecular weight is not new matter in the subject application as there is clear support to those ordinarily skilled in the art in the original specification. More specifically, referring to all of the Examples (beginning on page 8 and continuing to page 13), the polyether alcohol(s), i.e. the active hydrogen compound(s), are all described in the context of their OH number and their initiator compound or compounds (e.g. sorbitol, sucrose, glycerol, etc.). Those skilled in the art readily recognize that the OH number is a function of the *number* of molecules in the particular polyether alcohol sample...not a function of the average or total *weight* of molecules in the particular alcohol sample. Thus, the claim language inherently refers to number average molecular weight. Those skilled in the art also recognize that it is well settled that the number average molecular weight can be calculated according to the following mathematical formula:<sup>1</sup>

$$M_n = \frac{56.1(1000)f}{OH\#}$$

where  $f$  is the functionality of the polyol; and

$OH\#$  is the hydroxyl number of the polyol.

In view of the explanation above, it is respectfully submitted that this § 112 rejection should be withdrawn. If the Examiner so wishes, the Applicants are willing to further amend the claims to clarify that there is reference to the number average molecular weight.

Claims 1-16 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claims the subject matter with applicant regards as the invention. The Examiner identifies specific issues with respect to claim 1 (first issue), claim 8 (second issue), and claims 8 and 11-13 (third issue).

Claim 1 and claim 8 have been amended to address the first and second issues. Thus, the Applicants respectfully submit that the § 112 rejections relating to the first and second issues be withdrawn.

As for the third issue, the Applicants respectfully traverse. First, the Applicants wish to clarify that not all components for b) overlap in terms of functionality and molecular weight as the Examiner contends. As one example, the at least one polyol bii) (from claim 8) must have a molar mass greater than 1000 g/mol and a functionality of from 1.7 to 3 while the at least one polyetherol biii) (from claim 11) must have a molar mass of less than 1000 g/mol and a functionality of less than 2.5. There is clearly no overlap in these two elements. As yet a further example, there is absolutely no overlap with any of elements bi), bii), and biii) with element biv). Element biv) as claimed is a polyesterol, not a polyetherol.

Secondly, the Applicants contend that there is no requirement that the components for b) actually be mutually exclusive and, therefore, that claims 8 and 11-13 are in fact definite and

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<sup>1</sup> See, for example, Alfred Rudin, *THE ELEMENTS OF POLYMER SCIENCE AND ENGINEERING*, Chapter 3, pps. 117-118 (Academic Press, editor, 2<sup>nd</sup> Edition 1999), which is an introductory (emphasis added) reference text.

in compliance with § 112, second paragraph. To this end, the Applicants have researched relevant portions of both Chapters 700 and 2100 of the MPEP, especially as these chapters relate to 35 U.S.C. § 112, second paragraph (i.e., “indefiniteness”), and the Applicants can find no requirement that elements claimed within a single claim or within depending claims be mutually exclusive. To the extent that there is any overlap, additional elements would just be required. For example, in the context of:

- Claim 8       elements bi) and bii) are required;
- Claim 11      elements bi), bii), and biii) are required (even if bi) and biii) overlap);
- Claim 12      elements bi), bii), biii), and biv) are required; and
- Claim 13      elements bi), bii), biii), biv), and bv) are required.

In view of the above traverse and the supporting explanation, it is respectfully submitted that the § 112 rejection as it relates to the third issue be withdrawn.

**35 U.S.C. § 102 and/or 103 Rejections:**

Claims 8-10 and 15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Gansen et al. (United States Patent No. 5,063,253). Claims 11-14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gansen et al. Claims 1-3 and 16 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Onder (United States Patent Application Publication No. 2004/0087739 A1). Claims 4-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Onder in view of Grimm et al. (United States Patent No. 6,387,447) and Poisl et al. (United States Patent Application Publication No. 2003/0134920).

In addition to the amendments already described above, claims 1 and 8 have been amended to make it clear that the isocyanate adduct is essentially compact and also to make it

clear that the polyisocyanate or isocyanates involved have a functionality > 2. Support for the amendment relative to ‘essentially compact’ can be found in the original specification, specifically at page 1, line 1 and also at page 8, lines 6-7. Support for the amendment relative to the functionality > 2 can also be found in the original specification, specifically at page 5, line 47. Thus, as alluded to above, no new matter has been introduced.

The Applicants also wish to note that, in addition to not being new matter, the claim limitation relative to ‘essentially compact’ is definite and enabling. Those ordinarily skilled in the urethane and foaming industries readily recognize that compactness, when describing an isocyanate adduct as claimed, essentially describes a non-foamed adduct. That is, an isocyanate adduct that is compact is non-foamed. Some in these industries commonly refer to such adducts as high density urethane articles. In the context of this compact, or non-foamed, adduct, it is important to recognize that all of the Examples in the original specification utilize an anti-foaming agent (*see, for example, DC-MA*) to specifically prevent the formation of foam. Further, there are no blowing agents present, physical or chemical. The use of the term ‘essentially’ in conjunction with compact is merely intended to account for any small amount of ‘foaming’ that may occur due to trace amounts of moisture that may be inherently present as impurities in the reactants where these trace amounts of moisture may react with the isocyanate to introduce slight foaming in the adduct.

Gansen et al.:

In contrast to the claims as now amended, Gansen et al. discloses and teaches a flexible polyurethane foam which, as is clear to those skilled in the art, is not an isocyanate adduct that is essentially compact. Furthermore, in Gansen et al, there is no indication that

its flexible polyurethane foam is or can be utilized as an isocyanate adduct for low thermal conductivity purposes...which is claimed in and is an object of the subject invention. In view of the amendments to the claims and the explanations set forth above, it is respectfully submitted that any § 102 or § 103 rejections relying on Gansen et al. are overcome.

Onder:

In contrast to the claims as now amended, Onder generally discloses and teaches a thermoplastic ether polyurethane which essentially requires difunctional polyisocyanates (see paragraph [0013] where it is described that 2 functional polyisocyanates are highly preferred and that higher functional polyisocyanates are utilized in very small amounts...because they cause cross-linking). This is in direct conflict with the subject invention as claimed in claims 1-16...which now requires a functionality > 2. Simply stated, when polyisocyanates having functionalities > 2 are utilized in Onder, the polyurethane described therein loses its thermoplastic properties. Thus, Onder does not disclose and in fact teaches away from the claimed functionality. In view of the amendments to the claims and the explanations set forth above, it is respectfully submitted that any § 102 or § 103 rejections relying on Onder are overcome.

Finally, the secondary references to Grimm et al. and Poisl et al., either alone or in combination, do nothing to remedy the deficiencies inherent in the disclosure and teachings of Onder in view of the amended claims.

It is respectfully submitted that the claims as amended are in allowable form such that the application is now presented in condition for allowance, which allowance is respectfully

solicited. The Commissioner is authorized to charge our deposit account no. 08-2789 for any additional fees or credit the account for any overpayment.

Respectfully submitted,

**HOWARD & HOWARD ATTORNEYS**

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Date

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Attachment: Exhibit A

**CERTIFICATE OF EXPRESS MAILING**

I hereby certify that this Amendment, Attachment Exhibit A, Extension of Time, and fee are being deposited with the United States Postal Service as Express Mail, Label No. EV695475561US postage prepaid, in an envelope addressed to Commissioner of Patents, Mailstop AMENDMENT , P.O. Box 1450, Alexandria, Virginia 22313-1450, on **March 6, 2006**.

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